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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------|-------------|----------------------|---------------------|------------------|
| 10/627,500 | 07/25/2003 | Dennis A. Dempsey | AD-332J | 3247 |
| 7590 | | 04/12/2004 | EXAMINER | |
| Iandiorio & Teska | | WILLIAMS, HOWARD L | | |
| 260 Bear Hill Road | | ART UNIT | | |
| Waltham, MA 02451-1018 | | PAPER NUMBER | | |

2819

DATE MAILED: 04/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/627,500 | Applicant(s) DEMPSEY ET AL. | |
| | Examiner Howard L. Williams | Art Unit 2819 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-17, 20-24 and 27-74 is/are rejected.
- 7) ☒ Claim(s) 4,5,18,19,25 and 26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>29 Aug. 2003</u> . | 6) <input type="checkbox"/> Other: ____. |

The examiner acknowledges receipt of the Information Disclosure Statement received 29 August 2003. An initialed copy of the citation form should accompany this letter.

The number of claims presented is considered grossly excessive.

Claims 2 and 6 are objected to because of the following informalities: They are duplicative and do not differ in scope. Appropriate correction is required.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6, 17, 41-44 and 55 are rejected under 35 U.S.C. 102(e) as clearly anticipated by Reuveni et al. (US 6,667,703 B1).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12, 24, 50 and 60 are rejected under 35 U.S.C. 103(a) as unpatentable over Reuveni et al. (US 6,667,703 B1). It is quite commonplace and would have been obvious to connect the output of a digital-to-analog converter to an analog circuit.

Claims 7, 31, 36, 45, 65 and 70 are rejected under 35 U.S.C. 103(a) as unpatentable over Reuveni et al. (US 6,667,703 B1) in view of Opris (US 6,130,632) and the Analog Devices Analog-Digital Conversion Handbook. Reuveni et al. does not disclose normalization to the LSB in the converters. Opris (col. 5, lines 45-50) and the

AD Handbook (page 174) disclose the routine consideration of normalization in top codebits to "full-scale". It would have been obvious to include normalization as discussed in Opris and the AD Handbook because of the arithmetic considerations of codes and full-scale of the DAC.

Claims 8-11, 13-16, 20-23, 27-30, 32-35, 37-40, 46-49, 51-54, 56-59 and 61-64 are rejected under 35 U.S.C. 103(a) as unpatentable over Reuveni et al. (US 6,667,703 B1) in view of Fowers (US 6,191,715 B1).

Reuveni discloses the DAC system with certain ones of the circuit blocks depicted in figure 1 explicitly stated as on the same chip, for instance the test signal source and both DACs. While the other blocks are not explicitly so stated the construction of the layout as shown strongly suggests that the entire system is on a single chip. Memory for the coefficients is found in the "internal registers" (col. 6, lines 60-61) which store the calibration coefficients. Moreover Reuveni disclosure of any suitable control circuit for the calibration control provides impetus for moving the control and storage off-chip. Fowers discloses the inclusion of user programmable control. Inclusion of user programmable control would have been obvious because it allows the user to set the starting conditions as an estimate of the correction factors.


Claims 66--69 and 71-74 rejected under 35 U.S.C. 103(a) as being unpatentable over Reuveni et al. (US 6,667,703 B1) in view of Fowers (US 6,191,715 B1), Opris (US 6,130,632) and the Analog Devices Analog-Digital Conversion Handbook. Reuveni et al. does not disclose normalization to the LSB in the converters. Additionally Reuveni discloses the DAC system with certain ones of the circuit blocks depicted in figure 1 explicitly stated as on the same chip, for instance the test signal source and both DACs. While the other blocks are not explicitly so stated the construction of the layout as shown strongly suggests that the entire system is on a single chip. Opris (col. 5, lines 45-50) and the AD Handbook (page 174) disclose the routine consideration of normalization in top codebits to "full-scale". It would have been obvious to include normalization as discussed in Opris and the AD Handbook because of the arithmetic

considerations of codes and full-scale of the DAC. Memory for the coefficients is found in the "internal registers" (col. 6, lines 60-61) which store the calibration coefficients. Moreover Reuveni disclosure of any suitable control circuit for the calibration control provides impetus for moving the control and storage off-chip. Fowers discloses the inclusion of user programmable control. Inclusion of user programmable control would have been obvious because it allows the user to set the starting conditions as an estimate of the correction factors.

Claims 4, 5, 18, 19, 25 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office has a new central facsimile number for application specific correspondence intended for entry, it is 703-872-9306.

4/2/04
Voice 571.272.1815


Howard L. Williams
Primary Examiner
Art Unit 2819